RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/202,047A

DATE: 05/07/2002
TIME: 15:57:05

Input Set : A:\2002-04-22 0020-4491P seq list.txt
Output Set: N:\CRF3\05072002\I202047A.raw

```
 3 <110> APPLICANT: ITOH, Kyogo
 4        SHICHIJO, Shigeki
 5        IMAI, Yasuhisa
 7 <120> TITLE OF INVENTION: TUMOR ANTIGEN PROTEINS, GENES THEREFOR, AND TUMOR
 8        ANTIGEN PEPTIDES
10 <130> FILE REFERENCE: 0020-4491P
12 <140> CURRENT APPLICATION NUMBER: 09/202,047A
13 <141> CURRENT FILING DATE: 1998-12-07
15 <160> NUMBER OF SEQ ID NOS: 2
17 <170> SOFTWARE: PatentIn Ver. 2.1
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 2527
21 <212> TYPE: DNA
22 <213> ORGANISM: Homo sapiens
24 <220> FEATURE:
25 <221> NAME/KEY: misc_feature
26 <222> LOCATION: (1)..(2527)
27 <223> OTHER INFORMATION: Strandedness: Double-stranded
29 <220> FEATURE:
30 <221> NAME/KEY: 5'UTR
31 <222> LOCATION: (1)..(38)
33 <220> FEATURE:
34 <221> NAME/KEY: CDS
35 <222> LOCATION: (39)..(2438)
37 <220> FEATURE:
38 <221> NAME/KEY: 3'UTR
39 <222> LOCATION: (2439)..(2506)
41 <220> FEATURE:
42 <221> NAME/KEY: polyA_site
43 <222> LOCATION: (2507)..(2527)
45 <400> SEQUENCE: 1
46 ggttcggcgg cagccgggct cggagtggac gtgccact atg ggg tcg tcc aag aag 56
47                                             Met Gly Ser Ser Lys Lys
48                                              1               5
50 cat cgc gga gag aag gag gcg gcc ggg acg acg gcg gcg gcc ggc acc    104
51 His Arg Gly Glu Lys Glu Ala Ala Gly Thr Thr Ala Ala Ala Gly Thr
52                10              15                  20
54 ggg ggt gcc acc gag cag ccg ccg cgg cac cgg gaa cac aaa aaa cac    152
55 Gly Gly Ala Thr Glu Gln Pro Pro Arg His Arg Glu His Lys Lys His
56           25                  30                  35
58 aag cac cgg agt ggc ggc agt ggc ggt agc ggt ggc gaa cga cgg aag    200
59 Lys His Arg Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Arg Arg Lys
60        40                  45                  50
```

RAW SEQUENCE LISTING   DATE: 05/07/2002
PATENT APPLICATION: US/09/202,047A   TIME: 15:57:15

Input Set : A:\2002-04-22 0020-4491P seq list.txt
Output Set: N:\CRF3\05072002\I202047A.raw

```
62 cgg agc cgg gaa cgt ggg ggc gag cgc ggg agc ggg cgg cgc ggg gcc   248
63 Arg Ser Arg Glu Arg Gly Gly Glu Arg Gly Ser Gly Arg Arg Gly Ala
64  55              60                  65                  70
66 gaa gct gag gcc cgg agc agc acg cac ggg cgg gag cgc agc cag gca   296
67 Glu Ala Glu Ala Arg Ser Ser Thr His Gly Arg Glu Arg Ser Gln Ala
68              75                  80                  85
70 gag ccc tcc gag cgg cgc gtg aag cgg gag aag cgc gat gac ggc tac   344
71 Glu Pro Ser Glu Arg Arg Val Lys Arg Glu Lys Arg Asp Asp Gly Tyr
72              90                  95                  100
74 gag gcc gct gcc agc tcc aaa act agc tca ggc gat gcc tcc tca ctc   392
75 Glu Ala Ala Ala Ser Ser Lys Thr Ser Ser Gly Asp Ala Ser Ser Leu
76          105                 110                 115
78 agc atc gag gag act aac aaa ctc cgg gca aag ttg ggg ctg aaa ccc   440
79 Ser Ile Glu Glu Thr Asn Lys Leu Arg Ala Lys Leu Gly Leu Lys Pro
80      120                 125                 130
82 ttg gag gtt aat gcc atc aag aag gag gcg ggc acc aag gag gag ccc   488
83 Leu Glu Val Asn Ala Ile Lys Lys Glu Ala Gly Thr Lys Glu Glu Pro
84 135                 140                 145                 150
86 gtg aca gct gat gtc atc aac cct atg gcc ttg cga cag cga gag gag   536
87 Val Thr Ala Asp Val Ile Asn Pro Met Ala Leu Arg Gln Arg Glu Glu
88              155                 160                 165
90 ctg cgg gag aag ctg gcg gct gcc aag gag aag cgc ctg ctg aac caa   584
91 Leu Arg Glu Lys Leu Ala Ala Ala Lys Glu Lys Arg Leu Leu Asn Gln
92              170                 175                 180
94 aag ctg ggg aag ata aag acc cta gga gag gat gac ccc tgg ctg gac   632
95 Lys Leu Gly Lys Ile Lys Thr Leu Gly Glu Asp Asp Pro Trp Leu Asp
96          185                 190                 195
98 gac act gca gcc tgg atc gag agg agc cgg cag ctg cag aag gag aag   680
99 Asp Thr Ala Ala Trp Ile Glu Arg Ser Arg Gln Leu Gln Lys Glu Lys
100     200                 205                 210
102 gac ctg gca gag aag agg gcc aag tta ctg gag gag atg gac caa gag   728
103 Asp Leu Ala Glu Lys Arg Ala Lys Leu Leu Glu Glu Met Asp Gln Glu
104 215                 220                 225                 230
106 ttt ggt gtc agc act ctg gtg gag gag gag ttc ggg cag agg cgg cag   776
107 Phe Gly Val Ser Thr Leu Val Glu Glu Glu Phe Gly Gln Arg Arg Gln
108             235                 240                 245
110 gac ctg tac agt gcc cgg gac ctg cag ggc ctc acc gtg gag cat gcc   824
111 Asp Leu Tyr Ser Ala Arg Asp Leu Gln Gly Leu Thr Val Glu His Ala
112             250                 255                 260
114 att gat tcc ttc cga gaa ggg gag aca atg att ctt acc ctc aag gac   872
115 Ile Asp Ser Phe Arg Glu Gly Glu Thr Met Ile Leu Thr Leu Lys Asp
116             265                 270                 275
118 aaa ggc gtg ctg cag gag gag gag gac gtg ctg gtg aac gtg aac ctg   920
119 Lys Gly Val Leu Gln Glu Glu Glu Asp Val Leu Val Asn Val Asn Leu
120     280                 285                 290
122 gtg gat aag gag cgg gca gag aaa aat gtg gag ctg cgg aag aag aag   968
123 Val Asp Lys Glu Arg Ala Glu Lys Asn Val Glu Leu Arg Lys Lys Lys
124 295                 300                 305                 310
126 cct gac tac ctg ccc tat gcc gag gac gag agc gtg gac gac ctg gcg   1016
```

```
127 Pro Asp Tyr Leu Pro Tyr Ala Glu Asp Glu Ser Val Asp Asp Leu Ala
128             315                 320             325
130 cag caa aaa cct cgc tct atc ctg tcc aag tat gac gaa gag ctt gaa    1064
131 Gln Gln Lys Pro Arg Ser Ile Leu Ser Lys Tyr Asp Glu Glu Leu Glu
132             330                 335             340
134 ggg gag cgg cca cat tcc ttc cgc ttg gag cag ggc ggc acg gct gat    1112
135 Gly Glu Arg Pro His Ser Phe Arg Leu Glu Gln Gly Gly Thr Ala Asp
136             345                 350             355
138 ggc ctg cgg gag cgg gag ctg gag gag atc cgg gcc aag ctg cgg ctg    1160
139 Gly Leu Arg Glu Arg Glu Leu Glu Glu Ile Arg Ala Lys Leu Arg Leu
140     360                 365                 370
142 cag gct cag tcc ctg agc aca gtg ggg ccc cgg ctg gcc tcc gaa tac    1208
143 Gln Ala Gln Ser Leu Ser Thr Val Gly Pro Arg Leu Ala Ser Glu Tyr
144 375             380                 385                 390
146 ctc acg cct gag gag atg gtg acc ttt aaa aag acc aag cgg agg gtg    1256
147 Leu Thr Pro Glu Glu Met Val Thr Phe Lys Lys Thr Lys Arg Arg Val
148             395                 400                 405
150 aag aaa atc cgc aag aag gag aag gag gta gta gtg cgg gca gat gac    1304
151 Lys Lys Ile Arg Lys Lys Glu Lys Glu Val Val Val Arg Ala Asp Asp
152             410                 415                 420
154 ttg ctg cct ctc ggg gac cag act cag gat ggg gac ttt ggt tcc aga    1352
155 Leu Leu Pro Leu Gly Asp Gln Thr Gln Asp Gly Asp Phe Gly Ser Arg
156             425                 430                 435
158 ctg cgg gga cgg ggt cgc cgc cga gtg tcc gaa gtg gag gag gag aag    1400
159 Leu Arg Gly Arg Gly Arg Arg Arg Val Ser Glu Val Glu Glu Glu Lys
160     440                 445                 450
162 gag cct gtg cct cag ccc ctg ccg tcg gac gac acc cga gtg gag aac    1448
163 Glu Pro Val Pro Gln Pro Leu Pro Ser Asp Asp Thr Arg Val Glu Asn
164 455             460                 465                 470
166 atg gac atc agt gat gag gag gaa ggt gga gct cca ccg ccg ggg tcc    1496
167 Met Asp Ile Ser Asp Glu Glu Glu Gly Gly Ala Pro Pro Pro Gly Ser
168             475                 480                 485
170 ccg cag gtg ctg gag gag gac gag gcg gag ctg gag ctg cag aag cag    1544
171 Pro Gln Val Leu Glu Glu Asp Glu Ala Glu Leu Glu Leu Gln Lys Gln
172             490                 495                 500
174 ctg gag aag gga cgc cgg ctg cga cag tta cag cag cta cag cag ctg    1592
175 Leu Glu Lys Gly Arg Arg Leu Arg Gln Leu Gln Gln Leu Gln Gln Leu
176     505                 510                 515
178 cga gac agt ggc gag aag gtg gtg gag att gtg aag aag ctg gag tct    1640
179 Arg Asp Ser Gly Glu Lys Val Val Glu Ile Val Lys Lys Leu Glu Ser
180     520                 525                 530
182 cgc cag cgg ggc tgg gag gag gat gag gat ccc gag cgg aag ggg gcc    1688
183 Arg Gln Arg Gly Trp Glu Glu Asp Glu Asp Pro Glu Arg Lys Gly Ala
184 535             540                 545                 550
186 atc gtg ttc aac gcc acg tcc gag ttc tgc cgc acc ttg ggg gag atc    1736
187 Ile Val Phe Asn Ala Thr Ser Glu Phe Cys Arg Thr Leu Gly Glu Ile
188             555                 560                 565
190 ccc acc tac ggg ctg gct ggc aat cgc gag gag cag gag gag ctc atg    1784
191 Pro Thr Tyr Gly Leu Ala Gly Asn Arg Glu Glu Gln Glu Glu Leu Met
```

RAW SEQUENCE LISTING   DATE: 05/07/2002
PATENT APPLICATION: US/09/202,047A   TIME: 15:57:05

Input Set : A:\2002-04-22 0020-4491P seq list.txt
Output Set: N:\CRF3\05072002\I202047A.raw

```
192             570                575                580
194 gac ttt gaa cgg gat gag gag cgc tca gcc aac ggt ggc tcc gaa tct    1832
195 Asp Phe Glu Arg Asp Glu Glu Arg Ser Ala Asn Gly Gly Ser Glu Ser
196          585                590                595
198 gac ggg gag gag aac atc ggc tgg agc acg gtg aac ctg gac gag gag    1880
199 Asp Gly Glu Glu Asn Ile Gly Trp Ser Thr Val Asn Leu Asp Glu Glu
200     600                605                610
202 aag cag cag cag gat ttc tct gct tcc tcc acc acc atc ctg gac gag    1928
203 Lys Gln Gln Gln Asp Phe Ser Ala Ser Ser Thr Thr Ile Leu Asp Glu
204 615                620                625                630
206 gaa ccg atc gtg aat agg ggg ctg gca gct gcc ctg ctc ctg tgt cag    1976
207 Glu Pro Ile Val Asn Arg Gly Leu Ala Ala Ala Leu Leu Leu Cys Gln
208             635                640                645
210 aac aaa ggg ctg ctg gag acc aca gtg cag aag gtg gcc cgg gtg aag    2024
211 Asn Lys Gly Leu Leu Glu Thr Thr Val Gln Lys Val Ala Arg Val Lys
212          650                655                660
214 gcc ccc aac aag tcg ctg ccc tca gcc gtg tac tgc atc gag gat aag    2072
215 Ala Pro Asn Lys Ser Leu Pro Ser Ala Val Tyr Cys Ile Glu Asp Lys
216          665                670                675
218 atg gcc atc gat gac aag tac agc cgg agg gag gaa tac cga ggc ttc    2120
219 Met Ala Ile Asp Asp Lys Tyr Ser Arg Arg Glu Glu Tyr Arg Gly Phe
220     680                685                690
222 aca cag gac ttc aag gag aag gac ggc tac aaa ccc gac gtt aag atc    2168
223 Thr Gln Asp Phe Lys Glu Lys Asp Gly Tyr Lys Pro Asp Val Lys Ile
224 695                700                705                710
226 gaa tac gtg gat gag acg ggc cgg aaa ctc aca ccc aag gag gct ttc    2216
227 Glu Tyr Val Asp Glu Thr Gly Arg Lys Leu Thr Pro Lys Glu Ala Phe
228             715                720                725
230 cgg cag ctg tcg cac cgc ttc cat ggc aag ggc tca ggc aag atg aag    2264
231 Arg Gln Leu Ser His Arg Phe His Gly Lys Gly Ser Gly Lys Met Lys
232          730                735                740
234 aca gag cgg cgg atg aag aag ctg gac gag gag gcg ctc ctg aag aag    2312
235 Thr Glu Arg Arg Met Lys Lys Leu Asp Glu Glu Ala Leu Leu Lys Lys
236     745                750                755
238 atg agc tcc agc gac acg ccc ctg ggc acc gtg gcc ctg ctc cag gag    2360
239 Met Ser Ser Ser Asp Thr Pro Leu Gly Thr Val Ala Leu Leu Gln Glu
240     760                765                770
242 aag cag aag gct cag aag acc ccc tac atc gtg ctc agc ggc agc ggc    2408
243 Lys Gln Lys Ala Gln Lys Thr Pro Tyr Ile Val Leu Ser Gly Ser Gly
244 775                780                785                790
246 aag agc atg aac gcg aac acc atc acc aag tgacagcgcc ctcccgtagt    2458
247 Lys Ser Met Asn Ala Asn Thr Ile Thr Lys
248                795                800
250 cggccctgcc tcaaccttca tattaaataa agctccctcc ttatttttaa aaaaaaaaa 2518
252 aaaaaaaaa                                                         2527
255 <210> SEQ ID NO: 2
256 <211> LENGTH: 800
257 <212> TYPE: PRT
258 <213> ORGANISM: Homo sapiens
```

RAW SEQUENCE LISTING   DATE: 05/07/2002
PATENT APPLICATION: US/09/202,047A   TIME: 15:57:05

Input Set : A:\2002-04-22 0020-4491P seq list.txt
Output Set: N:\CRF3\05072002\I202047A.raw

```
260 <400> SEQUENCE: 2
261 Met Gly Ser Ser Lys Lys His Arg Gly Glu Lys Glu Ala Ala Gly Thr
262  1               5                  10                 15
264 Thr Ala Ala Ala Gly Thr Gly Gly Ala Thr Glu Gln Pro Pro Arg His
265             20                  25                 30
267 Arg Glu His Lys Lys His Lys His Arg Ser Gly Gly Ser Gly Gly Ser
268         35                  40                  45
270 Gly Gly Glu Arg Arg Lys Arg Ser Arg Glu Arg Gly Gly Glu Arg Gly
271     50                  55                  60
273 Ser Gly Arg Arg Gly Ala Glu Ala Glu Ala Arg Ser Ser Thr His Gly
274 65                  70                  75                  80
276 Arg Glu Arg Ser Gln Ala Glu Pro Ser Glu Arg Arg Val Lys Arg Glu
277             85                  90                  95
279 Lys Arg Asp Asp Gly Tyr Glu Ala Ala Ala Ser Ser Lys Thr Ser Ser
280         100                 105                 110
282 Gly Asp Ala Ser Ser Leu Ser Ile Glu Glu Thr Asn Lys Leu Arg Ala
283         115                 120                 125
285 Lys Leu Gly Leu Lys Pro Leu Glu Val Asn Ala Ile Lys Lys Glu Ala
286     130                 135                 140
288 Gly Thr Lys Glu Glu Pro Val Thr Ala Asp Val Ile Asn Pro Met Ala
289 145                 150                 155                 160
291 Leu Arg Gln Arg Glu Glu Leu Arg Glu Lys Leu Ala Ala Ala Lys Glu
292             165                 170                 175
294 Lys Arg Leu Leu Asn Gln Lys Leu Gly Lys Ile Lys Thr Leu Gly Glu
295             180                 185                 190
297 Asp Asp Pro Trp Leu Asp Asp Thr Ala Ala Trp Ile Glu Arg Ser Arg
298         195                 200                 205
300 Gln Leu Gln Lys Glu Lys Asp Leu Ala Glu Lys Arg Ala Lys Leu Leu
301     210                 215                 220
303 Glu Glu Met Asp Gln Glu Phe Gly Val Ser Thr Leu Val Glu Glu Glu
304 225                 230                 235                 240
306 Phe Gly Gln Arg Arg Gln Asp Leu Tyr Ser Ala Arg Asp Leu Gln Gly
307             245                 250                 255
309 Leu Thr Val Glu His Ala Ile Asp Ser Phe Arg Glu Gly Glu Thr Met
310             260                 265                 270
312 Ile Leu Thr Leu Lys Asp Lys Gly Val Leu Gln Glu Glu Glu Asp Val
313         275                 280                 285
315 Leu Val Asn Val Asn Leu Val Asp Lys Glu Arg Ala Glu Lys Asn Val
316     290                 295                 300
318 Glu Leu Arg Lys Lys Lys Pro Asp Tyr Leu Pro Tyr Ala Glu Asp Glu
319 305                 310                 315                 320
321 Ser Val Asp Asp Leu Ala Gln Gln Lys Pro Arg Ser Ile Leu Ser Lys
322             325                 330                 335
324 Tyr Asp Glu Glu Leu Glu Gly Glu Arg Pro His Ser Phe Arg Leu Glu
325             340                 345                 350
327 Gln Gly Gly Thr Ala Asp Gly Leu Arg Glu Arg Glu Leu Glu Glu Ile
328             355                 360                 365
330 Arg Ala Lys Leu Arg Leu Gln Ala Gln Ser Leu Ser Thr Val Gly Pro
331     370                 375                 380
```

VERIFICATION SUMMARY
PATENT APPLICATION: **US/09/202,047A**

DATE: 05/07/2002
TIME: 15:57:06

Input Set : **A:\2002-04-22 0020-4491P seq list.txt**
Output Set: **N:\CRF3\05072002\I202047A.raw**